

Attorney Docket No. 24403.00

IN THE APPLICATION

OF

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AND

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FOR A

INSULATED WALL SYSTEM WITH METAL STUDS AND FIRE RETARDANT WALLS

INSULATED WALL SYSTEM WITH METAL STUDS AND FIRE RETARDANT WALLS

BACKGROUND OF THE INVENTION

5 1. FIELD OF THE INVENTION

The present invention relates to wall systems. More particularly, the invention is an insulated wall system with metal studs and fire retardant walls that is used for basements and crawl spaces.

10 2. DESCRIPTION OF THE RELATED ART

Building codes dictate what construction and protection requirements are required for different buildings and occupancies. Building codes may also apply to a section of a building such as a basement. Many of these building codes have specific requirements for wall systems, studs, insulation and wall facing and are reflected in the related art.

20 United States Application Publication No. 2001/0004818 by VanHaitsma published on June 28, 2001, outlines the use of a highly economical basement wall providing strength and comfort, comparable to conventional basement wall structures, that includes a metal sill, a plurality of spaced apart metal wall studs, a metal decking secured to the plurality of metal wall

studs and a metal reinforcing stud welded to the plurality of metal wall studs.

United States Application Publication No. 2003/0097807 by Shidler published on May 29, 2003, outlines the use of a method and system for forming an insulated poured concrete wall. The system includes spaced-apart wall forms defining a cavity, a plurality of insulating panels adjacent to at least one of the opposing wall surfaces and a plurality of the elongated retaining strips between adjacent insulating panels. Each of the elongated retaining strips includes a portion that projects into the cavity and each of the elongated retaining strips has at least one notch through which a wall tie passes.

U.S. Pat. No. 4,653,241 issued to Bindi on March 31, 1987, outlines the use of an insulation system suitable for rapidly securing insulation to the interior surface of a basement wall. The system has a continuous roll of flexible insulation of a length substantially greater than its width and having an impermeable vapor barrier continuously laminated on one side thereof and in intimate contact therewith, the continuous roll being cut in sections of a length determined by the dimensions of a corresponding section of the interior surface of a basement wall to be covered.

U.S. Pat. No. 4,761,928 issued to Pichette on August 9, 1988, outlines the use of metal studs for building walls that are substantially cross-sectionally U-shape, defining a channel, and that have integral jagged finger-shaped portions or prongs punched out of the web of the stud, which can be bent

transversely to the web immediately prior to use, to enable impaling and anchoring of fiberglass insulation batts, so as to support and retain the batts in place between the studs.

5 U.S. Pat. No. 4,811,539 issued to Menchetti on March 14, 1989, outlines the use of a wall framing system with U-shaped metal studs in which there are two web portions with a plurality of aligned holes in the two webs. Short sections of channel are disposed through the aligned holes for supporting wallboard thereon and provisions near the ends of the short channel for
10 maintaining the ends of the channels in a fixed position relative to the wallboard are also provided.

U.S. Pat. No. 5,127,203 issued to Paquette on July 7, 1992, outlines the use of a seismic and fire resistant wall structure and method in which a U-shaped channel member having vertically
15 extended slotted openings in the side flanges thereof is mounted on the underside of a beam or other overhead structural member, with a layer of fire retardant material in the upper portion of the channel. Studs are connected to the channel member with fasteners, which pass through the slotted openings and permit
20 relative vertical movement between the channel member and the studs, while holding the studs in place horizontally.

U.S. Pat. No. 5,331,782 issued to Wohlgemuth on July 26, 1994, outlines the use of a basement enclosure with an outer shell, which is constructed of a material impermeable to moisture and gas. The basement enclosure may be free standing or hung from beams, which are supported by columns set on a conventional footer.

U.S. Pat. No. 5,535,556 issued to Hughes, Jr. on July 16, 1996 and U.S. Pat. No. 5,890,334 issued to Hughes, Jr. on April 6, 1999, outline the use of a basement wall formed by a series of vertical metal studs supported at their lower ends on a metal sill extending along the upper face of a concrete footing. An insulating sheathing is mounted on the metal studs to form the wall outer surface. The sheathing is formed by two panel layers of rigid foam core insulation material and the edges of the inner panels are offset from the edges of the outer panels to form labyrinth seals preventing migration of ground water through the sheathing.

U.S. Pat. No. 6,460,305 issued by VanHaitsma et al. on June 28, 2001, outlines the use of a highly economical basement wall providing strength and comfort, comparable to conventional basement wall structures, that includes a metal sill, a plurality of spaced apart metal wall studs, a metal decking secured to the plurality of metal wall studs and a metal reinforcing stud welded to the plurality of metal wall studs.

Each of these patents and publications outline the use of useful and novel inventions in the related art. It is also well-known in the related art that metal studs can be set directly against an internal basement concrete wall and insulation be adhered directly on the internal basement concrete wall. This arrangement has not worked well since moisture from the internal basement concrete wall can adversely affect the studs and insulation. What is really needed is an insulated wall system that can be easily assembled and built without being attached to

a concrete or concrete block wall. Such a wall system would address a current demand and would better serve the current marketplace.

None of the above inventions and patents, taken either singly or in combination, are seen to describe the instant invention as claimed. Thus an insulated wall system with metal studs and fire retardant walls solving the aforementioned problems is desired.

SUMMARY OF THE INVENTION

The invention is an insulated wall system for a basement with interior concrete walls that is nearly adjacently disposed to the interior concrete walls. The insulated wall system has a plurality of vertical metal studs with I-shaped cross-sections forming a plurality of cavities nearly adjacent to the interior concrete walls. There is also a plurality of fiberglass insulation sections that are frictionally fit in the plurality of cavities and a plurality of fire retardant sheets that are attached to the plurality of vertical metal studs thereby holding the plurality of fiberglass insulation sections within the insulated wall system.

Accordingly, it is a principal object of the invention to provide an easily assembled fire retardant wall system for basements and concealed spaces that does not have insulation attached to a potentially moist concrete basement wall.

It is another object of the invention to provide a fire retardant wall system that uses metal stud framing that is not in contact with a potentially moist concrete wall.

It is a further object of the invention to provide a wall system that is less expensive than a wall system with wooden studs.

Still another object of the invention is to provide a wall system that is not a fire hazard and/or a health hazard.

It is an object of the invention to provide improved elements and arrangements thereof for the purposes described which is inexpensive, dependable and fully effective in accomplishing its intended purposes.

These and other objects of the present invention will become readily apparent upon further review of the following specification and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an environmental, perspective view of an insulated wall system with metal stud framing and fire retardant walls according to the present invention.

Fig. 2 is a front and side perspective view of an insulated wall system with metal stud framing and fire retardant walls placed between the metal stud framing.

Fig. 3 is a cross-sectional perspective view of an insulated wall system with metal stud framing and fire retardant walls along line 3-3 of Fig. 2.

Similar reference characters denote corresponding features consistently throughout the attached drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention is an insulated wall system 10 for a basement with interior concrete walls CW that is nearly adjacently disposed to the interior concrete walls CW of the basement, as is depicted in Fig. 1.

As is shown in Fig. 2 and Fig. 3, the insulated wall system 10 comprises a plurality of vertical metal studs 20 with C or U-shaped cross-sections forming a plurality of cavities (not shown) nearly adjacent to the foundation concrete walls CW and a plurality of fiberglass insulation sections 30 that are frictionally fit in the plurality of cavities. The insulated wall system 10 further comprises a plurality of fire retardant sheets or skrim 40 that are attached to the plurality of vertical metal studs 20, thereby holding the plurality of fiberglass insulation sections 30 within the insulated wall system 10.

The plurality of vertical metal studs 20 have a bottom track 22 on the floor of the basement and a top track 24 on the ceiling of the basement to hold up and support the plurality of vertical metal studs 20. The plurality of fiberglass insulation sections 30 are cut to length fiberglass insulation and are frictionally fit between the plurality of vertical metal studs 20. The plurality of vertical metal studs 20 are spaced so that there is 16'' or 24'' between each metal stud and fit the corresponding plurality of fiberglass insulation sections 30, which come in identical widths. The plurality of fire retardant sheets or skrim 40 and other materials approved by local building codes, can also be used.

The plurality of fiberglass insulation sections 30 can be used with or without adhesive or glue on the vertical metal studs 20. It is currently well-known in the related art to have the plurality of vertical metal studs 20 be flush against basement concrete walls CW and to use adhesive directly on the basement concrete walls CW and place the plurality of fiberglass insulation sections 30 on the basement concrete walls CW. This arrangement has shown to be problematic since moisture from the basement concrete walls CW can adversely affect the adhered plurality of fiberglass insulation sections 30. Note that the insulated wall system 10 is set away between 1'' and 2.5'' from

the basement concrete wall CW and the plurality of fiberglass insulation sections 30 are adhered to the plurality of vertical metal studs 20 instead of the basement concrete walls CW. This creates an air pocket 32 between the basement concrete wall CW and the plurality of fiberglass insulation sections 30 and the plurality of vertical metal studs 20. This air pocket 32 also provides an added measure of insulation to the insulated wall system 10.

The use of the plurality of vertical metal studs 20 is safer to use than pressure-treated wood or wood studs, which, are also known to be used in the related art. The plurality of fire retardant sheets or skrim 40 are attached to the plurality of vertical metal studs 20 with drywall screws or pneumatic staples 34, both of which are well-known in the related art. It is also well-known in the related art to use fire retardant sheets or a skrim 40 wrapped around the plurality of fiberglass insulation sections 30 to keep from getting any moisture on the plurality of fiberglass insulation sections 30 from the concrete wall CW.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.